

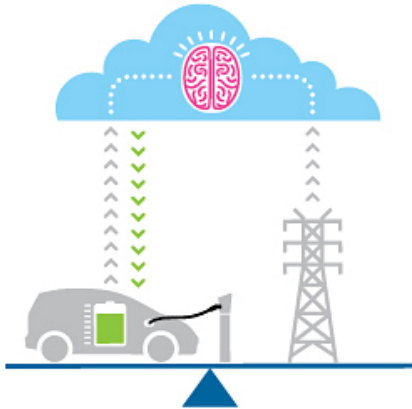
Electric Program Investment Charge (EPIC) Program

Honda Perspectives on Opportunities for CEC Investment

Ryan Harty
American Honda Motor Co. Inc
June 30, 2014

Background: Honda Vehicle to Grid Integration Efforts

Smart Charging



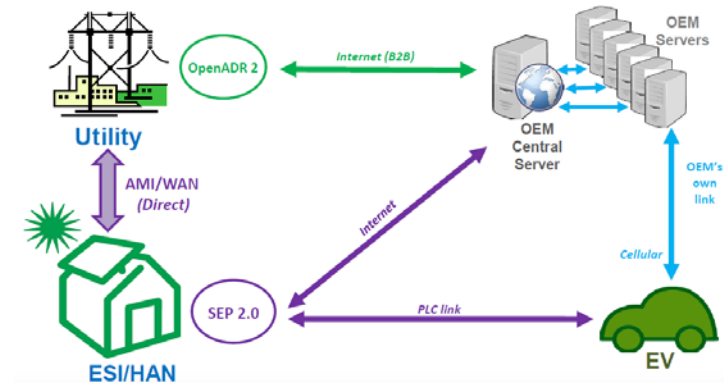
2012
Honda, IBM, PG&E

Vehicle to Grid



2013
Honda, University of Delaware, NRG

Industry Standardization



2014
EPRI, Sumitomo,
Several OEMs
(Including Honda)

Honda Home Energy Management System

Hardware Capabilities:

- 9.5 kW Solar PV array (software adjustable)
** Sized for future research expansion**
- 10 kW bi-directional inverter
- 10 kW DC car charger
- 10 kWh Lithium battery (software adjustable)

This is a Prototype machine built to test Functions

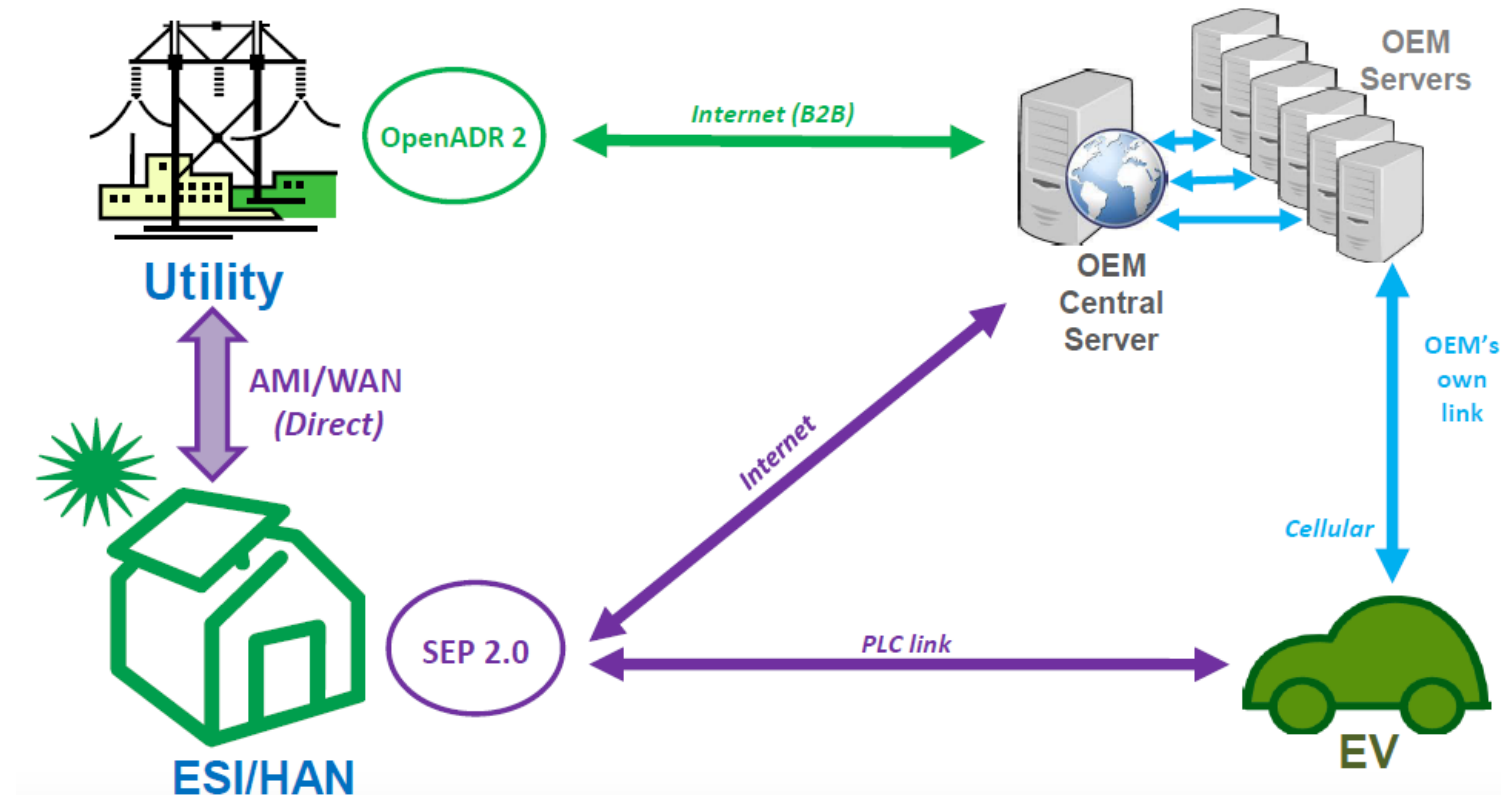
Functions:

- Direct DC Solar-to-BEV charging
- DC Storage Battery-to-BEV charging
- Solar PV Power Smoothing
- Demand Response
- Load Shifting / Carbon Minimization
- Local Grid Services
- Islanded backup power



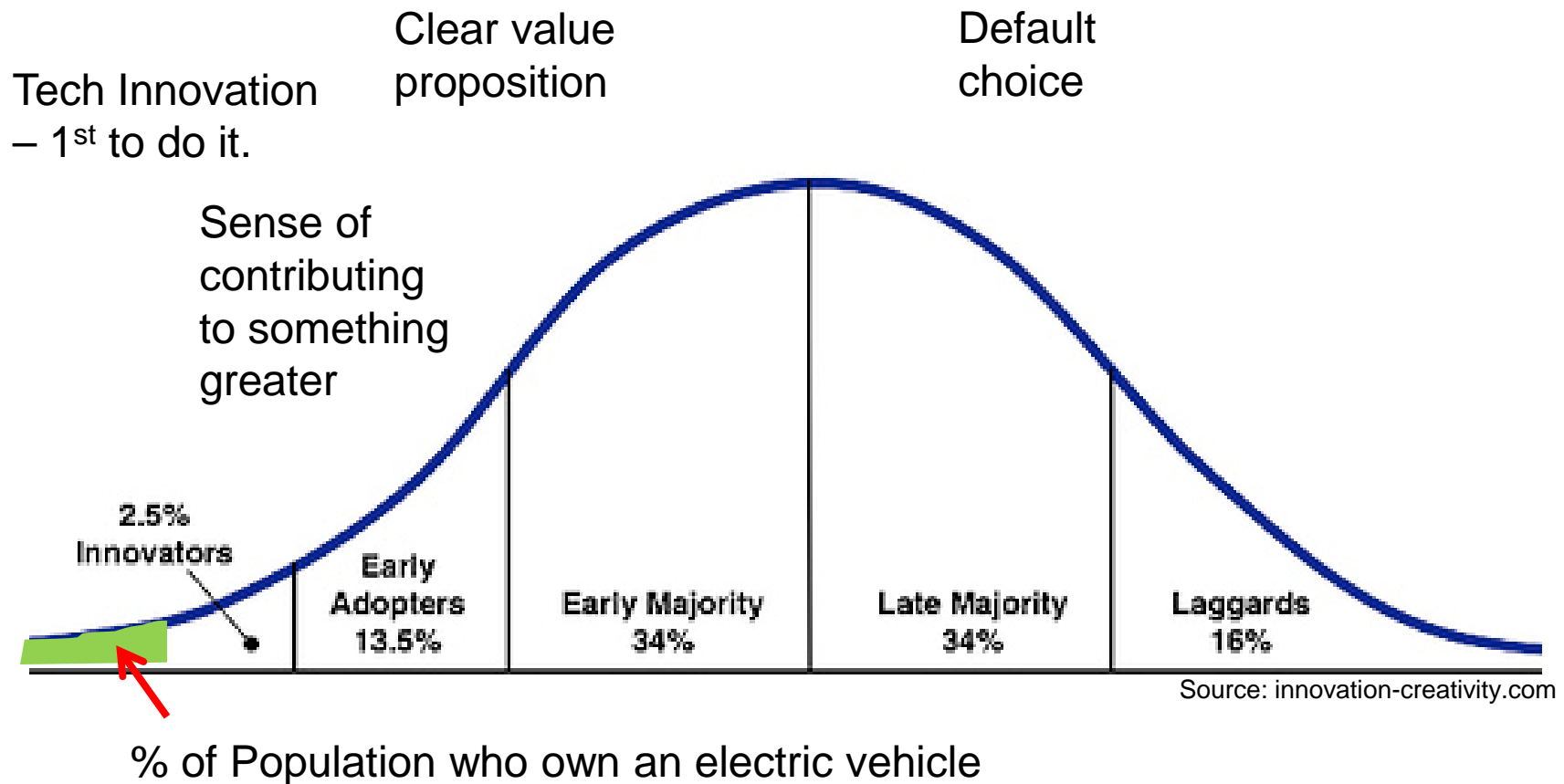
To see video, go to
HondaSmartHome.com

Common Barriers: OEM Central Server



- Phase 1 pilot will allow the Utility / OEM industry with EPRI and Sumitomo partners to verify the standardized communication signal effectiveness:
→ **One Utility can communicate a DR signal to multiple OEMs in their service territory.**
- Phase 2 funding would allow for the verification of the full potential of aggregated services. → **CEC could support Phase 2.**

Customer Research: Who is “The Customer?”



→ CEC could support consumer research to identify the values the customer seeks for VGI products

Long Term Safety and Reliability: Experience Matters



→ Technical details matter. → Testing matters. → Experience matters.

→ **CEC could support long term hardware reliability testing through SAE / EPRI**

Summary

- CEC can support efforts to integrate electric and plug-in hybrid vehicles to the grid
- CEC support can be especially effective to enable OEMs to address common industry barriers.
 - OEM Central Server
 - Customer Research
 - Long Term Safety and Reliability Testing